Bureau of Land Management Southern Idaho Infrastructure Development Conflict Map

Priority Biological, Cultural and Land-Use Concerns and Assumptions

October 2009 Version

1.0 Introduction: The purpose of the Conflict Map project is to provide a broad-scale view of relative zones of likely conflict for proposed new infrastructure development projects in southern Idaho, based on selected resource data themes of interest. It is not a decision map; it is an attempt to spatially present existing information to aid in project planning. Infrastructure development includes projects such as power transmission lines, communication facilities/towers, energy development, roads and similar actions on the landscape. Available spatial data and (associated analysis buffers where appropriate) for these resource themes were mapped and assigned a "conflict category" and value for each resource in the model. Definitions, Resource themes, concerns, data sources assumptions and rationale for specific factors used in the conflict model are displayed in the remainder of this document. Additional details can be found in the accompanying "Overview" document.

2.0 Base Map Conflict Category Values:

Low Conflict**:** Areas where adverse impacts from infrastructure development are expected to be minimal or can be reduced through minor siting adjustments and/or implementation of appropriate conservation or avoidance measures. In general, there are multiple options or wide latitude for reducing or minimizing conflict with the resource. In the Conflict Map model, resources of Low Conflict are assigned a conflict category value of 1.0.

Moderate Conflict: Areas where adverse impacts from infrastructure development are likely but there are options for avoidance or reduction of impacts, including, in some cases, the use of timing or seasonal constraints. In the Conflict Map model, resources of Moderate Conflict are assigned a conflict category value of 2.0.

High Conflict: Areas where adverse impacts from infrastructure development are likely and options for reducing or minimizing impacts are limited or non-existent. In the Conflict Map model, resources of High Conflict are assigned a conflict category value of 3.0.

Development Precluded: Areas where infrastructure development is precluded by law, regulation or policy. In the Conflict Map model, areas where development is precluded are assigned a conflict category value of 100.0.

3.0 Composite Conflict Map Category Values:

In the final Conflict Map product, conflict category scores were summed across the various resource themes overlying specific areas. Areas with composite conflict category scores were mapped as:

Low: Conflict Category Value total = 1.0-1.9. Displayed on the Conflict Map as a beige/pale yellow color.

Moderate: Conflict Category Value total = 2.0-2.9. Displayed on the Conflict Map as an vivid yellow color.

High: Conflict Category Value total = 3.0- 99.9. Colors grade from orange to deeper shades of red, as scores increase due to multiple high conflict or combinations of resource issues.

Development Precluded: Conflict Category Value total = 100.0 or more. For simplicity, development precluded areas are shown as a single shade of gray, though there may be multiple reasons why development is precluded, such a VRM Class 1 overlying designated wilderness. Development precluded areas may also simultaneously contain underlying areas of low, moderate, or high conflict resources such as sage-grouse habitat, big game winter range and others that are masked by the gray shading. Consult the resource base maps for additional information as needed.

4.0 Resource themes, concerns, data sources, assumptions and rationale used in the Conflict Map model:

RESOURCE	CONCERN	GIS DATA SOURCE	CONFLICT CATEGORY AND ASSUMPTIONS/ RATIONALE
BOTANICAL			
Slickspot Peppergrass (*Lepidium papilliferum*)	Infrastructure development may disturb/destroy LEPA element occurrences or habitat.	IDFG NHP element occurrence data. LEPA Consideration Zone. BLM data.	**Note:** This species is pending formal listing on 12/07/2009 as Threatened under the Endangered Species Act. Provisions of the LEPA Candidate Conservation Agreement and BLM/FWS Conservation Agreement apply to BLM lands in the state of Idaho, and proponents should review this document early in the project planning process pending further direction. While ESA listing will necessitate consultation with USFWS on a case by case basis, conflict is described as follows for purposes of the Conflict Map project: **Moderate** for LEPA Element Occurrences (EOs). Conflict Category Value 2.0. The rationale for a moderate conflict rating is that areas can be inventoried and mapped ahead of time, allowing for avoidance of occupied LEPA sites during construction and maintenance activities. **Low** for LEPA Consideration Zone outside of EO sites. Conflict Category Value 1.0. There is potential for conflict with LEPA sites or habitat, however suitable pre-project inventories and appropriate siting of projects should minimize impacts. The rationale for a low conflict rating is that the Consideration Zone is much larger than the known EO sites (where the species has been documented). As a result, it includes areas where conditions are not suitable for LEPA, providing flexibility for project siting.

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BIG GAME			
Elk	Infrastructure development and maintenance activity may disturb or displace wintering elk.	RMEF data	**Moderate.** Conflict Category Value 2.0. Timing of construction and maintenance activities can be adjusted to minimize disturbance but projects should be sited to avoid crucial winter habitat where possible.
Mule Deer	Infrastructure development and maintenance activity may disturb or displace wintering deer.	Western Association of Wildlife Agencies Mule Deer Working Group/ Utah Division of Wildlife Resources and Idaho BLM RMPs.	**Moderate**. Conflict Category Value 2.0. Timing of construction and maintenance activities can be adjusted to minimize disturbance but projects should be sited to avoid crucial winter habitat where possible.
Pronghorn	Infrastructure development and maintenance activity may disturb or displace wintering pronghorn.	BLM data from Resource Management Plans	**Moderate.** Conflict Category Value 2.0. Timing of construction and maintenance activities can be adjusted to minimize disturbance but projects should be sited to avoid crucial winter habitat where possible.
Bighorn Sheep (Rocky Mountain and California)	Infrastructure development and maintenance activity may disturb or displace bighorn sheep.	IDFG	**Moderate**. Conflict Category Value 2.0. Timing of construction and maintenance activities can be adjusted to minimize disturbance but projects should be sited to avoid crucial/ important habitats where possible.

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DESIGNATED LANDS			
Designated Wilderness	Energy/ infrastructure development impair wilderness character	BLM	**Development Precluded.** Conflict Category Value 100.0. The Wilderness Act Section 4(c) prohibits certain activities, in these words: "Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area."
Wilderness Study Areas	Energy/ infrastructure development impair wilderness character.	BLM	**Development Precluded**. Conflict Category Value 100.0. Uses and facilities cannot create surface disturbance or involve permanent placement of facilities. New ROWs may only be approved for temporary uses that satisfy the non-impairment criteria.
Areas of Critical Environmental Concern (ACECs	Energy/ infrastructure development may impair the character or intent of ACEC.	BLM	**High.** Conflict Category Value 3.0. Purposes for specific ACECs varies, however infrastructure development would likely conflict with the purposes of many, and could lead to significant ground or visual disturbance on smaller or linear ACECs.

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Birds of Prey National Conservation Area	Energy/ infrastructure development may adversely affect wildlife/botanical habitat	BLM	**Moderate.** Conflict Category Value 2.0. All lands and realty proposals must be compatible with the purposes for which the NCA was established. The Plan states: Restrict major utility developments to the two utility corridors identified. Include in all BLM authorizations permitting surface disturbing activities (non-grazing), requirements that (1) affected areas be reseeded with a perennial vegetative cover, and (2) surface disturbing activities be located at least a half-mile from occupied sensitive plant habitat.
Craters of the Moon National Monument and Preserve	Energy/ infrastructure development is not consistent with intent of the National Monument/ Preserve	BLM	**Development Precluded**. Conflict Category Value 100.0. Enabling legislation ensures protection of the Great Rift volcanic rift zone and its associated features. The Monument Plan emphasizes protection and restoration of physical and biological resources and processes. All Management Zones must meet the purpose and significance of the Monument and comply with Proclamation 7373.
Military Special Use Airspace Areas; Military Operating Areas; Military Training Routes; and Delta class FAA airspace	Restrictions on or risks with ROW/ tall structures due to low level flight hazard or other factors	Department of Defense; Mountain Home Air Force Base; and Federal Aviation Administration	**Development Precluded.** Conflict Category Value 100.0. In "Restricted" Special Use Airspace areas, development of tall structures is precluded based on low level military flight training needs. **Moderate.** Conflict Category Value 2.0. In "General" Special Use Airspace/Military Operating Areas, Military Training Routes, and FAA Delta class airspace development of tall structures may be possible but proposals must be coordinated closely with the military or FAA as appropriate. Consult with DOD/ FAA on a case by case basis.
Jim Sage Mountain Special Recreation Mgmt. Area	Scenic and natural qualities may be compromised by infrastructure development.	BLM	**High.** Conflict Category Value 3.0. The objective of this area is to maintain scenic and natural characteristics above 6,600 feet.

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VISUAL RESOURCES			
Visual Resource Management Class I	Most energy/ infrastructure development is incompatible because it cannot meet VRM Class I objectives	BLM	**Development Precluded.** Conflict Category Value 100.0. Development is not compatible with maintaining VRM Class I objectives.
Visual Resource Management Class II	Most energy/ infrastructure development is incompatible because it cannot meet VRM Class II objectives	BLM	**High**. Conflict Category Value 3.0. Where projects can meet VRM Class II objectives (through visual mitigation techniques), they can be approved.
PRIORITY RESTORATION AREAS			
Priority Restoration Areas (Idaho Falls and Twin Falls BLM Districts)	Infrastructure development in these areas may compromise restoration objectives by increasing human disturbance, risk of invasive plant species, avian/ mammalian predation, avian collision risk, and other factors.	Delineated by BLM Field Office staff, October 2009.	**Moderate.** Conflict Category Value 2.0. BLM and habitat conservation partners have invested substantial funding and effort in rehabilitating or restoring habitats for sage-grouse or other focal species. Depending on location within the Priority Restoration Areas, there may be options on a case by case basis for reducing potential adverse impacts, such as through siting adjustment. In general, however, infrastructure development in Priority Restoration Areas is anticipated to reduce the effectiveness of the restoration actions for sensitive species such as the sage-grouse.

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SENSITIVE GROUSE			
Greater Sage-grouse	Disturbance to nesting or wintering birds; habitat loss; collision risk; spread of invasives; avian predation; possible avoidance of tall structures	Idaho Sage-grouse Habitat Planning Map, IDFG lek database (BLM, IDFG)	**BLM Sensitive Species. Under review for possible listing under the Endangered Species Act.** **High**. Conflict Category Value 3.0. Areas delineated as Key sage-grouse habitat on the latest version (currently 2008) of the Idaho Sage-grouse Habitat Planning Map. These are areas of generally intact sagebrush that provide habitat for sage-grouse at some portion of the year. It may be able to site infrastructure in a manner to avoid specific leks or habitats, however possible impacts from avian predators associated with new infrastructure, uncertainty of predation risk, potential for avoidance of infrastructure by sage-grouse, and impacts of human disturbance suggest potential for high conflict. **Moderate.** Conflict Category Value 2.0. Areas delineated as Potential Restoration Area Type 1 (Perennial Grasslands) and/or Potential Restoration Area Type 3 (Conifer Encroachment areas) on the latest version (currently 2008) of the Idaho Sage-grouse Habitat Planning Map. As sagebrush cover may be minimal (perennial grasslands) or compromised by conifer encroachment (conifer encroachment areas), these areas are assumed to be of moderate conflict in terms of infrastructure development. It must be recognized however, that subsequent restoration (seeding to sagebrush, conifer removal) may lead to these areas being Key habitat, however timeframes are uncertain. **Low.** Conflict Category Value 1.0. Areas delineated as Potential Restoration Area Type 2 (Annual Grasslands) on the latest version (currently 2008) of the Idaho Sage-grouse Habitat Planning Map. These areas are generally dominated or strongly influenced by cheatgrass or other annuals. Restoration is uncertain however there

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			is potential for recovery to perennial grasslands and Key habitat over the longer term. See the greater sage-grouse analysis discussion in Appendix A of the "Overview" document for additional details.
Columbian Sharp-tailed Grouse	Disturbance to lekking, nesting or wintering birds; habitat loss; spread of invasives; avian predation; collision risk; avoidance of tall structures	IDFG lek database annual update	**BLM Sensitive Species** **High.** Conflict Category Value 3.0. High conflict assumed within 2.0 km of leks. Sharp-tailed grouse habitat is already limited in Idaho and is further at risk if the Farm Bill/Conservation Reserve Program and related programs are not adequately funded. Not as widely distributed as sage-grouse, so impacts may be particularly difficult to mitigate. Much habitat occurs on private lands in West Central and SE/ E Idaho but a habitat map is not currently available. Construction/ maintenance activities may disturb or displace lekking grouse. Surface occupancy by infrastructure may increase avian predation risk. Sharp-tailed grouse may also avoid tall structures. Meints et al. recommended a 2.0 km lek radius for assessing brood and nesting cover around leks and 6.5 km for assessing winter cover. Ulliman et al. 1998 also indicated most nest and brood locations occur within 2 km (1.2 miles) of the lek where a hen was bred. Literature Citations: Meints, D.R., J.W. Connelly, K.P. Reese, and T.P. Hemker. 1992. Habitat suitability index (HIS) procedure for Columbian sharp-tailed grouse. Univ. of Idaho Forest, Wildlife, and Range Experimental Station Bulletin 55, Moscow.

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			Ulliman, M.J., A. Sands, and T. Hemker. 1998. Draft Idaho Columbian sharp-tailed grouse conservation plan. Idaho Conservation Effort, IDFG.
SMALL MAMMALS			
Pygmy Rabbit	Destruction of burrow systems during construction; human disturbance during construction and maintenance; spread of invasives into quality habitat, avian predation risk	IDFG NHP data; Kriging analysis completed by BLM	**BLM Sensitive Species; Under review for possible listing under the Endangered Species Act.** **High.** Conflict Category Value 3.0. Areas with a high likelihood of core habitat based on the kriging analysis (see below) were assigned a rank of high conflict. It may be possible to site structures, roads etc. in a manner to avoid specific burrow systems. However possible impacts from avian predators associated with new infrastructure, uncertainty of predation risk, patchiness of pygmy rabbit occurrences on the landscape and impacts of human disturbance suggest potential for high conflict. **Moderate.** Conflict Category Value 2.0. Areas with a moderate likelihood of core habitat were assigned a moderate conflict rank. Due to lesser confidence of these areas being core habitat, there may be less risk and more options for reducing or mitigating impacts from infrastructure. **Pygmy Rabbit Occurrence Likelihood Analysis (PLA).** The PLA combines spatial kriging of IDFG-NHP "High Confidence" locations with vegetation systems in USGS Shrubmap 2005 landcover map. Potential pygmy rabbit vegetation systems were defined by associating Shrubmap vegetation system with the high confidence point occurrence data. The resulting map denotes areas of *High* and *Moderate* likelihood core habitat based on spatial autocorrelation error from the kriging analysis. Breakpoint delineation was determined using standard statistical methods (natural 'jenks"). See the pygmy rabbit spatial likelihood analysis

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			discussion in Appendix A of the "Overview" document for additional details. There is site-level risk from destruction of burrows or direct disturbance, and also risk of increased avian and possibly mammalian predation, such as might be associated with new roads or two-tracks constructed in conjunction with infrastructure projects. Recent research also highlights the role of predators in pygmy rabbits as follows. 1. In the Lemhi Valley, Idaho, Sanchez (2007) reported that of 100 pygmy rabbit mortalities from natural causes, 22% were from mammalian predation and 20% from avian predation. 2. In the Lemhi Valley of Idaho, Estes-Zumpf and Rachlow (2009) showed 49% of mortalities for 53 known-fate juvenile pygmy rabbits was due to predation. Of that, avian predation accounted for 53.8%, and 3.8% mammalian predation. 3. In OR and NV, Crawford (2008) showed that of 265 mortalities of 298 collared pygmy rabbits, 133 were due to predation, with 19.6% due to coyotes and 18.5% avian predators. Literature Citations: Crawford, J.A. 2008. Survival, movements and habitat selection of pygmy rabbits (*Brachylagus idahoensis*) on the Great Basin of Southeastern Oregon and Northwestern Nevada. Thesis. Oregon State University, Corvallis. 142 pp. Estes-Zumpf, W. A. 2008. Dispersal and gene flow among pygmy rabbit (*Brachylagus idahoensis*) populations in Idaho and southwestern Montana. Dissertation. University of Idaho, Moscow. 165 pp.

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			Sanchez, D.M. 2007. Pieces of the pygmy rabbit puzzle: Space use, survival and Survey Indicators. Dissertation. University of Idaho, Moscow. 146 pp.
Southern Idaho Ground Squirrel	Destruction of burrow systems during construction; human disturbance during construction and maintenance; avian predation risk; spread of invasives into quality habitat	IDFG NHP, BLM	**USFWS Candidate species.** **High**. Conflict Category Value 3.0. There are potential concerns with avian predators associated with new infrastructure. It may be possible to site structures, roads etc. in a manner to avoid burrows or habitat. However, the known occupied area is very limited in extent and very susceptible to infrastructure and other anthropogenic development due to a preponderance of private lands. Known extant sites were buffered with an arbitrary 1.0 mile zone, for analysis purposes, until we have better information on distribution.
Northern Idaho Ground Squirrel	Destruction of burrow systems during construction; human disturbance during construction and maintenance; avian predation risk; spread of invasives into quality habitat	IDFG NHP	**USFWS Threatened Species.** **High.** Conflict Category Value 3.0. Most locations are on USFS land but there is potential for BLM involvement with rights-of-way. It may be possible to site structures, roads etc. in a manner to avoid burrow systems. There are possible concerns with avian predators associated with new infrastructure. Known extant sites were buffered with an arbitrary 1.0 mile zone for analysis purposes.

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RAPTOR NESTS			
Bald Eagle	Human disturbance of nests	IDFG NHP	**BLM Sensitive Species; Recently de-listed by USFWS.** **High.** Conflict Category Value 3.0. Obligations under the Bald and Golden Eagle Protection Act and recent guidelines. For analysis purposes, nests were buffered by 660 ft . Buffer derived from the National Bald Eagle Management Guidelines USFWS 2007 page 12.
Golden Eagle	Human disturbance of nests	IDFG NHP	**Obligations under the Bald and Golden Eagle Protection Act.** **Moderate.** Conflict Category Value 2.0. For analysis purposes, nests were buffered with 0.5 miles. Buffer derived from draft USFWS Guidelines for Raptor Conservation in the Western US (2/2008 draft).
Ferruginous Hawk	Human disturbance of nests	BLM and IDFG NHP	**BLM Sensitive Species.** **Moderate**. Conflict Category Value 2.0. Very sensitive to human disturbance during the breeding/nesting season. It is assumed that construction activity has a high likelihood of disturbance during that timeframe however seasonal restrictions can be used to reduce impacts. For analysis purposes, nests were buffered by 1.0 mile. Buffer derived from draft USFWS Guidelines for Raptor Conservation in the Western US (2/2008 draft).
RARE INSECTS			
Idaho Dunes Tiger Beetle (St. Anthony)	Disturbance to dunes and interdunal areas (larval habitat)	IDFG NHP	**BLM Sensitive Species.** **Low**. Conflict Category Value 1.0. Siting of structures and access roads can be done in a manner that avoids occupied dunes and interdunal areas. Known extant occurrences were buffered with an arbitrary 0.5 mile .for analysis purposes.

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Bruneau Dunes Tiger Beetle	Disturbance to dunes and interdunal areas (larval habitat)	IDFG NHP data	**BLM Sensitive Species.** **Low**. Conflict Category Value 1.0. Conflict Category Value 1.0. Siting of structures and access roads can be done in a manner that avoids occupied dunes and interdunal areas. Known extant occurrences were buffered with an arbitrary 0.5 mile .for analysis purposes.
CULTURAL AND HISTORIC RESOURCES			
National Scenic and Historic Trails (NSHTs)	Construction of towers within the viewshed of NSHTs could adversely affect historic settings and visual resource values.	BLM, State Historic Preservation Office	**High**. Conflict Category Value 3.0. New development or proposed Right-Of-Ways paralleling NSHTs may or may not be precluded, but the degree of conflict varies by local circumstances and the characteristics of the landscape setting. There is not a universally accepted analysis buffer. Protective corridors may be established under approved Resource Management Plans. However, for purposes of the Conflict Map analysis, a 1.0 mile buffer each side of the NSHT was employed for preliminary analysis. However for local, project level analysis, the area of potential effect may extend up to three or more miles to formally determine if a project will adversely affect the historic/ landscape setting of NSHTs.
National Register of Historic Places (NRHP) Districts (Sensitive Data concerns apply)	Construction activities may directly and adversely affect individual sites and the overall character and value of the entire district.	BLM, State Historic Preservation Office	**High.** Conflict Category Value 3.0. NRHP Districts are specially recognized areas for containing important archaeological and historic values. Development within/near NRHP Districts has a high potential to directly and indirectly affect the archaeological and historic values for which these districts have been recognized.

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OTHER IMPORTANT RESOURCE CONSIDERATIONS NOT INCORPORATED INTO CONFLICT MODEL:			
Sensitive Cultural Areas. Sensitive Data concerns apply; data are not developed as a statewide data layer, but could be with additional effort.	Construction activities directly and adversely affecting known/expected sites.	BLM, State Historic Preservation Office data. Not used in the current exercise due to data sensitivity concerns and lack of a statewide data set. More appropriate for finer scale, project-specific siting.	Moderate to High conflict but spatial data are restricted and not used in the conflict map analysis. Includes areas containing high numbers of known or expected archaeological resources and historic properties, including places of traditional cultural/ religious importance, as defined in statute, regulations and appropriate guidance .
Numerous T/E or BLM Sensitive fish and other aquatic species not evaluated in the conflict model.	Construction/ maintenance activities may affect populations or aquatic/ riparian habitat or cause disturbance.	IDFG and BLM data are available but not used in the conflict map model. Many species may be more appropriately addressed at the fine scale, project-specific level.	Potentially high impacts depending on the species. To be evaluated locally at the project level as appropriate or via other analyses.
Numerous T/E or BLM Sensitive terrestrial animal and plant species not evaluated in the conflict model	Construction/ maintenance activities may affect populations or terrestrial habitat or cause disturbance	IDFG and BLM data are available for many species but were not used in the conflict map model. Many may be more appropriately addressed at the fine scale project-specific level.	Potentially High impacts depending on the species, but these species will be addressed locally the project level as appropriate or via other analyses.